ABSTRACT:

An autonomous, efficient and effective object tracking algorithm was required to autonomously identify and track incoming targets. Then controlling a pan-tilt mounted with the sensing camera to accommodate the target within the camera's field of view and controlling a weapon mounted on the second mechanical pan tilt to lock the target and follow it efficiently and accurately. A hybrid algorithm is derived that is a combination of an intruder identification and localization technique derived from the normalized cross correlation method. Spatial and dimensional parameters of the target are autonomously retrieved from segmented correlation method, which are then used as the input parameters for the mean shift algorithm.